

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
9 June 2005 (09.06.2005)

PCT

(10) International Publication Number
WO 2005/053153 A1

(51) International Patent Classification⁷:

H03F 1/32

(81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:

PCT/SE2003/001825

(22) International Filing Date:

25 November 2003 (25.11.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (*for all designated States except US*): TELEFONAKTIEBOLAGET LM ERICSSON (publ)
[SE/SE]; S-164 83 Stockholm (SE).

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

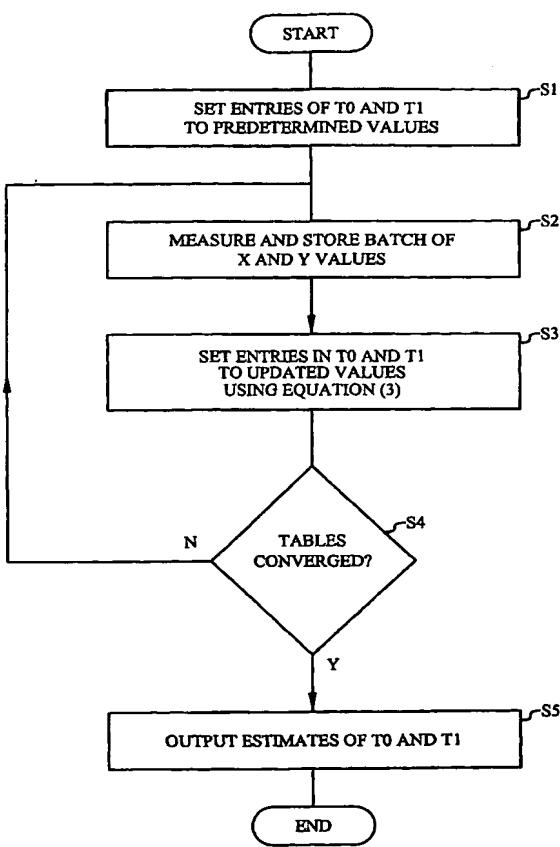
(72) Inventor; and

(75) Inventor/Applicant (*for US only*): DALIPI, Spendim [SE/SE]; Stuvvägen 75, S-191 42 Sollentuna (SE).

(74) Agent: AROS PATENT AB; P.O. Box 1544, S-751 45 Uppsala (SE).

[Continued on next page]

(54) Title: POWER AMPLIFIER PRE-DISTORTER TRAINING



(57) Abstract: A power amplifier pre-distorter is formed by a FIR filter structure which includes an individual look-up table for each filter tap, where each look-up table represents a sample polynomial in a variable representing signal amplitude, and means for selecting, from each filter tap look-up table, a filter coefficient that depends on the amplitude of corresponding complex signal value to be multiplied by the filter tap. A training method for such a pre-distorter sets (S1) the entries of table T_0 and T_1 to predetermined values. Then it measures and stores (S2) a batch of input signals x and feedback signals y . New estimates of T_0 and T_1 are determined (S3) using an iteration of a least mean square based iterative procedure. Then it is tested (S4) whether the tables have converged. If the tables have converged, the current estimates are provided as the final tables. Otherwise another iteration (S2-S4) of the least mean square procedure is performed.

WO 2005/053153 A1



Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.